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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,570	09/20/2006	Katsuhiro Tetsuya	DK-US065224	1382

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GLOBAL IP COUNSELORS, LLP  
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WASHINGTON, DC 20036-2680

EXAMINER
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LAWRENCE JR, FRANK M

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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02/09/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,570	<b>Applicant(s)</b> TETSUYA ET AL.	
	<b>Examiner</b> Frank M. Lawrence	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10, 12-15 and 17 is/are rejected.
- 7) ☒ Claim(s) 8, 11 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/20/06</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 12, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (5,785,741) in view of the Japanese reference (JP 2001-230196).

3. Li et al. '741 disclose a gas purifier for removing ammonia and other impurities from a semiconductor manufacturing process exhaust gas and recycling purified gas back to the process, comprising a wet scrubber (4), an upstream dry scrubber (3), and a downstream pressure swing adsorption unit (13, 11) (see figure 2, col. 13, lines 1-48). The instant claims differ from the disclosure of Li et al. '741 in that the wet scrubber has a plurality of pipes or stacked film elements in a tank containing pure water with a water regenerator and ion concentration sensor for controlling pure water supply.

4. JP '196 discloses a wet scrubber for removing ammonia from wafer processing exhaust gas, comprising an array/stack of Teflon pipes (104) in a tank (72) that is supplied with pure water (108). The water is regenerated by a filter (142) and recycled back to the supply, and an ammonia concentration sensor (115) connected to a control unit for adjusting the flow rate of pure water with a flow control valve (110) (see figures, abstract, paragraphs 12, 14, 34, 49-50 of machine translation). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Li et al. '741 by using the scrubber of JP '196 in

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order to provide a unit that recycles the impurity removing liquid and has excellent maintainability.

5. Claims 6, 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. '741 in view of JP '196 as applied to claim 1 above, and further in view of the Japanese reference (JP 2002-093688).

6. Li et al. '741 in view of JP '196 disclose all of the limitations of the claims except that the adsorption unit includes a hydrophobic zeolite honeycomb rotor with a regeneration sector, a cooling air amount controller, a rotation controller with an angle or speed sensor, and drive motor. JP '688 discloses an adsorber for removing ammonia from substrate processing exhaust gas, comprising a motor-driven, hydrophobic zeolite honeycomb rotor (21) with conduits for recycling cooling/regeneration gas through the rotor (see abstract, figures, paragraphs 33-35 of machine translation). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the purifier of the primary references by using the adsorber of JP '688 in order to provide continuous, constant pressure purification that does not require an arrangement for placing the zeolite offline during regeneration. It is submitted that one skilled in the art would also have been motivated to use rotor speed control and cooling air flow control with appropriate sensors in order to provide the expected result of optimization of the adsorption/regeneration cycle.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. '741 in view of JP '196 as applied to claim 12 above, and further in view of the Japanese reference (JP 2001-252521).

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8. Li et al. '741 in view of JP '196 disclose all of the limitations of the claims except that there is a temperature control mechanism for the pure water. JP '521 discloses a gas-liquid contact system for purifying a gas comprising a temperature control mechanism (see abstract, paragraph 15 of the machine translation). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of the primary references by using temperature control for the pure water in order to provide increased absorption capacity and reduced bacteria growth.

***Allowable Subject Matter***

9. Claims 8, 11 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose gas-liquid contactors and semiconductor process gas purifiers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161.

The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Frank M. Lawrence/  
Primary Examiner, Art Unit 1797

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